

3.16 Polar Coordinates

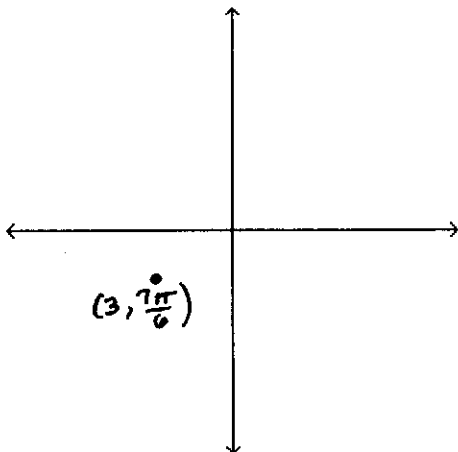
Name _____ Date _____ Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the rectangular coordinates of the point with the given polar coordinates.

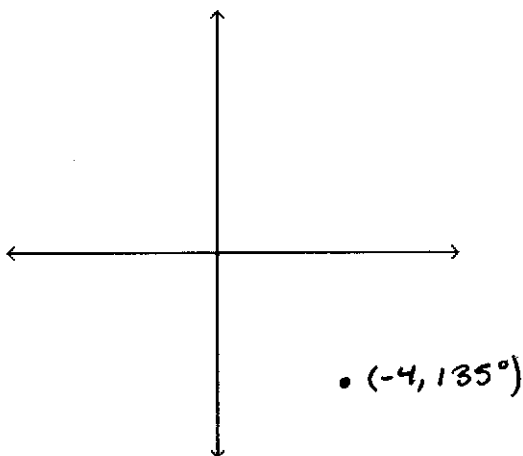
1)

1) _____



2)

2) _____



3) $(1.5, 7\pi/3)$

3) _____

4) $(-3, 29\pi/7)$

4) _____

5) $(-2, \pi)$

5) _____

6) $(2, 270^\circ)$

6) _____

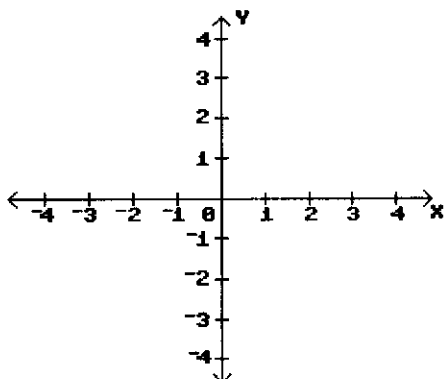
7) $(-3, 360^\circ)$

7) _____

Plot the point with the given polar coordinates.

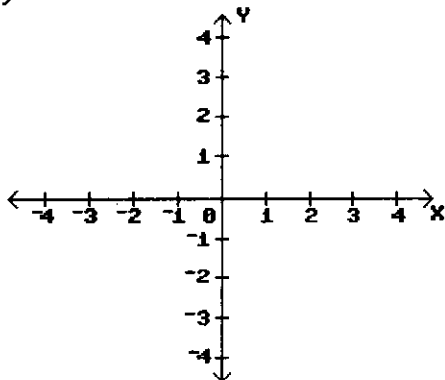
8) $\left(3, \frac{4\pi}{3}\right)$

8) _____



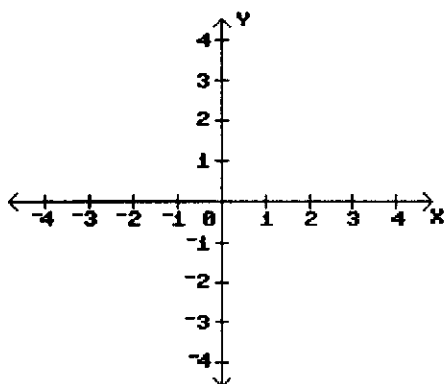
9) $\left(-1, \frac{2\pi}{5}\right)$

9) _____



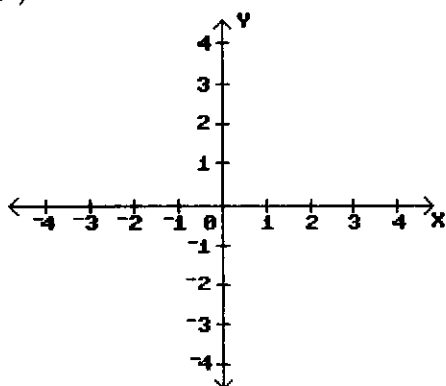
10) $(2, 30^\circ)$

10) _____



11) $(-2, 120^\circ)$

11) _____



The polar coordinates of point P are given. Find all of its polar coordinates $(-2\pi \leq \theta \leq 2\pi)$

12) $P = (2, \pi/6)$

12) _____

13) $P = (1.5, -20^\circ)$

13) _____

14) $P = (1, -\pi/4)$

14) _____

15) $P = (-2.5, 50^\circ)$

15) _____

Rectangular coordinates of point P are given. Find all polar coordinates of P that satisfy

a) $0 \leq \theta \leq 2\pi$ b) $-\pi \leq \theta \leq \pi$ c) $0 \leq \theta \leq 4\pi$

16) $P = (1, 1)$

16) _____

17) $P = (1, 3)$

17) _____

18) $P = (-2, 5)$

18) _____

19) $P = (-1, -2)$

19) _____

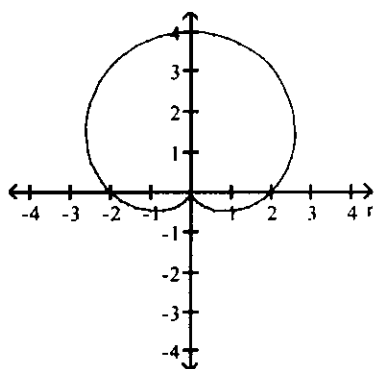
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use your grapher to determine which of the graphs matches the given polar equation.

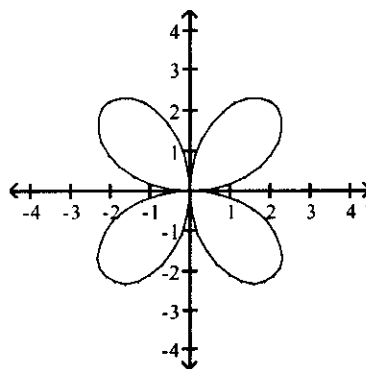
20) $r = 3 \sin 2\theta$

20) _____

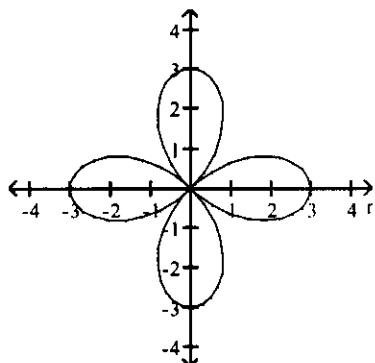
A)



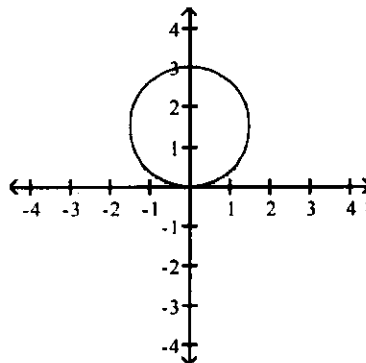
B)



C)



D)



SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find an equivalent equation in polar coordinates.

21) $x = 2$

21) _____

22) $x = 5$

22) _____

23) $2x + 3y = 5$

23) _____

24) $3x + 4y = 2$

24) _____

25) $(x - 3)^2 + y^2 = 9$

25) _____

26) $x^2 + (y - 1)^2 = 1$

26) _____

27) $(x + 3)^2 + (y + 3)^2 = 18$

27) _____

28) $(x - 1)^2 + (y + 4)^2 = 17$

28) _____

Solve the problem.

- 29) The locations, given in polar coordinates, of two ships are (7 mi, 44°) and (8 mi, 104°).
Find the distance between the two ships.

29) _____

Find an equivalent equation in rectangular coordinates.

30) $r = 10 \sin \theta$

30) _____

31) $r(\cos \theta - \sin \theta) = 4$

31) _____

